REMARKS

In the Office Action date September 30, 2003, pending claims 1-10 and 18-21 (those not presently withdrawn from consideration) have in part been objected to as indefinite, and all have been rejected as either anticipated by or obvious in light of the cited patent to Achatz.

Rejections and Objections Under 35 U.S.C. Section 112

Claims 4 and 5 were rejected under 35 U.S.C. Section 112 as being indefinite on the basis that the specification did not mention a "compensator", and claim 5 was additionally objected to for lack of antecedent basis for the term "the second compensator".

Claim 4 has now been amended to delete the term "compensator", and instead to specify that the probe shield "is driven by a guard voltage nearly equal to the measured AC voltage . . .". This amendment is supported in the application as filed at page 3, lines 29-32 and page 9, lines 14-17.

Claim 5 has now been amended to change the term "compensator" to "means for measuring . . . ", thus obviating the Section 112 objections raised by the Examiner.

Claims 8 and 21 were objected to under 35 U.S.C. Section 112 as lacking antecedent basis for terms appearing therein. The antecedent basis problems have been resolved by the above amendments to these claims. Specifically, in claim 8, "amplifier" has been amended to read "measuring circuit", which has antecedent basis in claim 1. In claim 21, the phrase "the airframe" as been amended to read "an airframe", obviating the antecedent basis objection.

Rejections Under 35 U.S.C. Sections 102(b) and 103

Claims 1-3, 6-10 and 18-21 have been rejected as either anticipated under 35 U.S.C. Section 102(b) or obvious under 35 U.S.C. Section 103 in light of the Achatz patent.

The Achatz patent discloses a measurement system for measuring electric interference in high-voltage switchgear by using high- and low-frequency signal analyzers to determine phase information of received interference signals. The filtering and analysis circuitry (including components 5-16 shown in the single figure of Achatz) is coupled to a single ground-referenced capacitive probe 3, which can be capacitively coupled to a high-voltage conductor 2 under test.

The signal from the capacitive probe 3 feeds through a low-pass filter including inductor 10 and a ground-referenced capacitor 11 to extract the low-frequency portion of the signal at point 12 of the circuit.

By way of contrast, the present invention as set forth in independent claims 1 and 18 is directed to a device that, while also using a single capacitive probe, specifically avoids the use a ground-referenced measurement because stray capacities produce too much error in the measurement.

The problem is discussed at page 7, lines 10-16 of the present application: "A conventional approach to the problem of measuring these voltage drops through capacitive probes would be to use a high-impedance differential amplifier, having a common-mode range equal to or greater than the line voltage, and make a differential measurement. The present inventor has tried this approach and found that even though the circuit common-mode rejection ratio can be made sufficient to get accurate readings, the effect of stray capacitances on the common-mode rejection makes this approach impracticable."

Achatz discloses a circuit in which a signal from a ground-referenced capacitive probe is fed through a low-pass filter to measure the AC line voltage, in order to time the occurrences of high-frequency disturbances relative to the line cycle. In contrast, the present invention uses a floating measurement method, achieved by attaching the circuit common of the capacitive sensor circuit to one end of a series of connections and the capacitive clamp to the other end, to measure small voltage drops across the connections. The fact that the Achatz design also uses a capacitive sensor does not teach or suggest this combination of elements of the present invention.

Claim 1 is directed to a device having an electrode that provides a reference for the device, connected to a first end of one or more series connections and with a capacitive probe coupled to a wire at a second end of the connections, while the device of claim 18 includes a meter with a ground reference electrically coupled to a first end of the connections and a capacitive probe for clamping to an outer insulation of a wire to sense a voltage a second end of the connections.

The invention as set forth in the independent claims thus allows a floating capacitive-probe measurement across a series of connections. These claims are not anticipated or made obvious by Achatz, which uses a single capacitive probe 3 and does not disclose or suggest a

connection to a common-mode voltage of the test circuit, as specified in claims 1 and 18. See discussion in the application relating to problems involved in using a ground-referenced differential system and the nature of stray capacitance effects, at page 3, lines 21-32 and page 7, lines 9, *et seq.*

Claims 2-10 and 19-21 are dependent upon independent claims 1 and 18, respectively, and thus are allowable over the Achatz patent for the reasons set forth above. New claims 35 and 36 are also dependent upon claim 18, and are directed to embodiments as shown in Figures 2 and 3 (discussed at page 6, line 30 – page 7, line 8 of the application), wherein the first end of the connections is connected to either the energized (voltage-driven) terminal of the power source or to the ground terminal of the power source, respectively.

With the amendments noted above and the resolution as discussed above of the Section 112 objections and rejections, applicant accordingly urges that each of the pending claims under consideration is in condition for allowance, notice whereof is respectfully requested.

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The Commissioner is herby authorized to charge any additional fees that may be due, including extension fees, or credit any overpayment to our Deposit Account No. 08-3038 (Order No. 03015.0002.NPUS01).

Respectfully submitted,

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